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EXAMINER

GOGIA, ANKUR

ART UNIT	PAPER NUMBER
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2187

DATE MAILED: 03/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/677,114	BARTLETT, PAUL FREDERICK	
	<b>Examiner</b>	<b>Art Unit</b>	
	Ankur Gogia	2187	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>10/02/03</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

1. The examiner acknowledges the preliminary amendment dated 20 January 2006, introducing new claim 15; the instant application, having Application No. 10/667,114, has a total of 15 claims pending in the application; there are 8 independent claims and 7 dependent claims, all of which are ready for examination by the examiner.

### ***Oath/Declaration***

2. The applicant's oath/declaration has been reviewed by the examiner and is found to conform to the requirements prescribed in 37 C.F.R. 1.63.

### ***Priority***

3. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in The United Kingdom on 2 October 2002. It appears that the applicant may have submitted the priority documents in the Response to Notice to File Missing Parts dated 9 March 2004, however the documents are still not of record.

### ***Drawings***

4. Figures 1, 2A and 2B should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct

any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to because there are two figures labeled 11. The examiner notes that this objection may be overcome by labeling the figures as 11a and 11b. Furthermore, the examiner recommends adding text to the second figure 11 indicating that the figure is continuing from the first figure 11. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Information Disclosure Statement***

6. As required by M.P.E.P. 609(c), the applicant's submission of the Information Disclosure Statement dated 2 October 2003 is acknowledged by the examiner and the cited references have been considered in the examination of the claims now pending. As required by M.P.E.P. 609(c)(2), a copy of the PTOL-1449 initialed and dated by the examiner is attached to the instant office action.

***Specification***

7. The disclosure is objected to because of the following informalities: On page 16, line 1 of ¶6 it states "In process **906**", however it appears that the disclosure is actually referring to process **907**.

Furthermore, on page 20, line 1 of ¶5 it states "If in step **1103**", however it appears that the disclosure is actually referring to step **1102**.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 13 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Independent Claim 13**

Lines 8-12 disclose that “if the number of records on a wrap is **not greater** than the target number of file records, then the particular wrap **has been located**” and “alternatively, if the number of records on a wrap is **greater** than the target number of file records, **incrementing the wrap number...**”. Furthermore, lines 16-17 disclose, “alternatively, if the cumulative number of records is not less than the target record, **then again incrementing the wrap number**, then the particular wrap has been located.”

It does not appear to be clear how the method as disclosed will locate a “particular wrap on which a target record is located.” For example, regarding lines 8-12, if the “target number of file records” is 70 and the “number of records on a wrap” is 50, it would appear that the “particular wrap” **has not** been located and alternatively if the “target number of file records” is 50 and the “number of records on a wrap” is 70, then it would appear that the “particular wrap” **has been** located.

Regarding lines 16-17, if, for example, the “cumulative number of records” is 70 and the “target record” is 50 with the “wrap number” being 1, then it would appear that incrementing the wrap number to 2 would result in locating the wrap following the “particular wrap on which a target record is located.”

For the purposes of the instant Office Action, the examiner has interpreted the claim as lines 8-12 reading “if the number of records on a wrap is **greater** than the target number of file records, then the particular wrap **has been located**” and “alternatively, if the number of records on a wrap is **not greater** than the target number

of file records, **incrementing the wrap number...**" and lines 16-17 as reading "alternatively, if the cumulative number of records is not less than the target record, then the particular wrap has been located."

**Independent Claim 14**

Regarding claim 14, in step 4 it is disclosed that upon determining if a final record is available, then selecting the next record. As disclosed, it appears that the record that has been determined to be available is not the record selected and therefore the incorrect record would be read and not the requested record.

***Claim Rejections - 35 USC § 101***

10. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

11. Claims 1-8, 13 and 15 are rejected under 35 U.S.C. 101 because the claimed inventions are directed to non-statutory subject matter.

**Independent Claims 1, 5, 7 and 15**

Regarding these claims, the claims appear to lack a "tangible result" in order to satisfy the "practical application" requirement of 35 U.S.C. 101. The combination of "reading data ... from a memory device," "determining a position of a data record," and "determining an order in which to read data records" fails to produce a real world valued result. Merely making determinations of a position of a data record and an order one is going to use to read data records does not provide the claim with the real world value necessary to be considered a "practical application."

**Claims 2-8**

These claims are rejected for inheriting the deficiencies of the claims from which they depend.

**Independent Claim 13**

Regarding claim 13, the claim appears interpretable to constitute, as a whole, an abstract idea. It's a mathematical algorithm combined with the "thoughts" – "the particular wrap has been located." As such, the claim fails to provide the required "practical application of a judicial exception (in this case, abstract idea)."

***Claim Rejections - 35 USC § 102***

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Klomp et al. (5,546,246; Hereinafter referred to as Klomp).

**Independent Claim 13**

Klomp discloses a method of locating a particular wrap on which a target record is located, the method comprising:

Setting a cumulative number of records equal to zero;

Setting a wrap number equal to zero;

Determining the number of records on each wrap;



Determining whether or not the number of records on a wrap is greater than a target number of file records;

If the number of records on a wrap is not greater than the target number of file records, then the particular wrap has been locked; and

Alternatively, if the number of records on a wrap is greater than the target number of file records, incrementing the wrap number, calculating the cumulative number of records, and determining whether or not the cumulative number of records is less than the target record;

If the cumulative number of records is less than the target record, then again incrementing the wrap number, calculating the cumulative number of records, and determining whether or not the cumulative number of records is less than the target record; and

Alternatively, if the cumulative number of records is not less than the target record, then again incrementing the wrap number, then the particular wrap has been located. **(Klomp discloses a method of locating data blocks on a tape drive wherein blocks are numbered sequentially in a serpentine manner. As disclosed in Col. 7, Lines 42-52, the method uses an end-of-track directory, which stores the last block number on each track (i.e. cumulative number of records through the current track), and compares a target block number with the last block number of each track to determine between which two consecutive tracks the target track is located (i.e. if the target number is less than the number of records on the wrap, the wrap has been found, else go to the next wrap and obtain the cumulative**

number of records through that wrap. If the target record is less than the cumulative number of records, then the wrap has been found, else continue to the next wrap and so on). Although all the steps of claim 13 are not explicitly stated in Klomp, they are inherently required for the method to function as disclosed by Klomp.).

### ***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 1-3, 5, 7, 12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Basham et al. (2001/0034811; Hereinafter referred to as Basham) in view of applicant's admitted prior art (Hereinafter referred to as AAPA).

#### **Independent Claim 1**

Basham discloses a method (**Abstract, Line 1**) of locating a plurality of data records stored linearly on a data storage medium and determining an order in which to read said plurality of data records, said method comprising:

Reading data relating to said plurality of records stored on said data storage medium from the data storage medium (**¶35**);

Determining a position of said data record on said data storage medium for each data record to be read (**¶s 36-37**); and

Determining an order in which to read said plurality of data records from said data storage medium to minimize time required to read said plurality of data records (**¶s 36, 44 and 46**).

Basham does not disclose expressly wherein the data relating to said plurality of records stored on said data storage medium is stored on a memory device associated with the data storage medium.

AAPA discloses a tape data storage cartridge with a memory device for storing data describing the content of the respective tape data storage cartridge (**Figs. 1, 2A and 2B; Pg. 1, ¶5 – Pg. 2 ¶2; Here the tape itself is the data storage medium and not the entire cartridge**).

Basham and AAPA are analogous art because they are from the same field of endeavor of optimizing file retrieval from tape drives.

At the time of the invention it would have been obvious to a person of ordinary skill in the art, having the teachings of Basham and AAPA before them, store data relating to a plurality of records stored on a data storage medium on a memory device associated with the data storage medium.

The motivation for doing so would have been to enable a summary of the content of the tape to be read without the need to wind the whole length of the tape (**AAPA, Pg. 2, ¶2**).

Therefore, it would have been obvious to combine AAPA with Basham to obtain the invention as specified in claim 1.

**Claim 2**

Basham further discloses wherein determining a position of each data record comprises:

Determining a location of said data record in a direction transverse to a read direction along said data storage medium (**¶s 36-37 disclose finding the location of the blocks along the tape. Since the blocks may be located on different wraps, the location is determined in a direction that is transverse to a read direction**); and

Determining a location of said data record along a length of a line along which said data record is written (**¶s 36-37 disclose finding the location of the blocks along the tape, in which the blocks are stored in wraps (i.e. along a length of a line)**)).

**Claim 3**

Basham further discloses wherein determining a position of each data record comprises:

Determining a location of said data record in a direction transverse to a read direction along said data storage medium (**¶s 36-37 disclose finding the location of the blocks along the tape. Since the blocks may be located on different wraps, the location is determined in a direction that is transverse to a read direction**); and

Determining a location of said data record along a length of a line along which said data record is written (**¶s 36-37 disclose finding the location of the blocks along the tape, in which the blocks are stored in wraps (i.e. along a length of a line)**));

Wherein said line along which said data record is written comprises a line between a beginning of said data storage medium and an end of said data storage medium **(inherent; Data must be written between a beginning and end of a data storage medium)**.

**Independent Claim 5**

Basham discloses a program storage device, readable by a machine, tangibly embodying a program (**¶23**) to perform a method for controlling a computer to retrieve data from a data storage medium, said method comprising:

Receiving data relating to said plurality of records stored on a data storage medium from the data storage medium (**¶35**);

Determining positions on said data storage medium of said plurality of data records using the retrieved data (**¶s 36-37**); and

Determining a read sequence for reading said plurality of data records from said data storage medium to minimize time needed to read said plurality of data records (**¶s 36, 44 and 46**).

Basham does not disclose expressly wherein the data relating to said plurality of records stored on said data storage medium is retrieved from a memory device associated with the data storage medium.

AAPA discloses a tape data storage cartridge with a memory device for storing data describing the content of the respective tape data storage cartridge (**Figs. 1, 2A and 2B; Pg. 1, ¶5 – Pg. 2 ¶2**; Here the tape itself is the data storage medium and not the entire cartridge).

Basham and AAPA are analogous art because they are from the same field of endeavor of optimizing file retrieval from tape drives.

At the time of the invention it would have been obvious to a person of ordinary skill in the art, having the teachings of Basham and AAPA before them, store data relating to a plurality of records stored on a data storage medium on a memory device associated with the data storage medium.

The motivation for doing so would have been to enable a summary of the content of the tape to be read without the need to wind the whole length of the tape (AAPA, Pg. 2, ¶2).

Therefore, it would have been obvious to combine AAPA with Basham to obtain the invention as specified in claim 5.

#### **Independent Claim 7**

Basham discloses a computer (**Fig. 1.10**) adapted to communicate with a data storage device to enable reading and writing a plurality of data records on a data storage medium (**¶s 22-24**), said computer comprising:

A component adapted to receive data relating to a plurality of records stored on a data storage medium from the data storage medium (**¶35**);

A component adapted to determine positions on said data storage medium of said plurality of data records using the received data (**¶s 36-37**); and

A component adapted to determine a read sequence to read said plurality of data records from said data storage medium to minimize time needed to read said plurality of data records (**¶s 36, 44 and 46**).

Basham does not disclose expressly wherein the data relating to said plurality of records stored on said data storage medium is retrieved from a memory device associated with the data storage medium.

AAPA discloses a tape data storage cartridge with a memory device for storing data describing the content of the respective tape data storage cartridge (**Figs. 1, 2A and 2B; Pg. 1, ¶5 – Pg. 2 ¶2; Here the tape itself is the data storage medium and not the entire cartridge**).

Basham and AAPA are analogous art because they are from the same field of endeavor of optimizing file retrieval from tape drives.

At the time of the invention it would have been obvious to a person of ordinary skill in the art, having the teachings of Basham and AAPA before them, store data relating to a plurality of records stored on a data storage medium on a memory device associated with the data storage medium.

The motivation for doing so would have been to enable a summary of the content of the tape to be read without the need to wind the whole length of the tape (**AAPA, Pg. 2, ¶2**).

Therefore, it would have been obvious to combine AAPA with Basham to obtain the invention as specified in claim 7.

### **Independent Claim 12**

**Note: The means below have been disclosed on page 23 of the instant specification as being either a program operating a processor or firmware operating programs. Basham discloses both implementations in ¶28.**

Basham discloses a tape drive unit, said tape drive unit comprising:

A means for reading data from said data storage medium relating to a plurality of data records stored on said data storage medium (**¶35**); and;

A means for determining a position of said data record on said data storage medium of each data record to be read (**¶s 36-37**); and

A means for determining on order in which to read said plurality of data records from said data storage medium to minimize time needed to read said plurality of data records (**¶s 44 and 46**).

Basham does not disclose expressly said tape drive unit comprising a transponder device adapted to read data from a cartridge memory device of a tape data storage cartridge inserted in said tape drive unit.

AAPA discloses a tape data storage cartridge with a memory device for storing data describing the content of the respective tape data storage cartridge (**Figs. 1, 2A and 2B; Pg. 1, ¶5 – Pg. 2 ¶2; Here the tape itself is the data storage medium and not the entire cartridge**) and a tape drive unit comprising a transponder device adapted to read from said memory device (**Pg. 2, Lines 1-6 disclose a tape data storage device being able to wirelessly read data from the memory device on a tape cartridge and as such the tape data storage device must have a transponder to communicate with the memory device**).

Basham and AAPA are analogous art because they are from the same field of endeavor of optimizing file retrieval from tape drives.



At the time of the invention it would have been obvious to a person of ordinary skill in the art, having the teachings of Basham and AAPA before them, store data relating to a plurality of records stored on a data storage medium on a memory device associated with the data storage medium.

The motivation for doing so would have been to enable a summary of the content of the tape to be read without the need to wind the whole length of the tape (AAPA, Pg. 2, ¶2).

Therefore, it would have been obvious to combine AAPA with Basham to obtain the invention as specified in claim 12.

#### **Independent Claim 15**

Basham discloses a method (**Abstract, Line 1**) of locating a plurality of data records stored linearly on a data storage medium and determining an order in which to read said plurality of data records, said method comprising:

Reading data relating to said plurality of records stored on said data storage medium **from the data storage medium (¶35);**

Determining a position of said data record on said data storage medium for each data record to be read in response to data relating to said plurality of data records stored on said data storage medium from said memory device (**¶s 36-37**); and

Determining an order in which to read said plurality of data records from said data storage medium in response to the determination of the position of said data record on said data storage medium for each data record (**¶s 36, 44 and 46**).

Basham does not disclose expressly wherein the data relating to said plurality of records stored on said data storage medium is stored on a memory device associated with the data storage medium, said memory device being separate from said data storage medium.

AAPA discloses a tape data storage cartridge with a memory device for storing data describing the content of the respective tape data storage cartridge wherein the memory device is separate from the tape (i.e. the data storage medium) **(Figs. 1, 2A and 2B; Pg. 1, ¶5 – Pg. 2 ¶2; Here the tape itself is the data storage medium and not the entire cartridge).**

Basham and AAPA are analogous art because they are from the same field of endeavor of optimizing file retrieval from tape drives.

At the time of the invention it would have been obvious to a person of ordinary skill in the art, having the teachings of Basham and AAPA before them, store data relating to a plurality of records stored on a data storage medium on a memory device associated with the data storage medium.

The motivation for doing so would have been to enable a summary of the content of the tape to be read without the need to wind the whole length of the tape **(AAPA, Pg. 2, ¶2).**

Therefore, it would have been obvious to combine AAPA with Basham to obtain the invention as specified in claim 15.

16. Claims 4, 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Basham in view of AAPA as applied to claims 1, 5 and 7 above, and further in view of Hillyer et al. (5,845,316; Hereinafter referred to as Hillyer).

**Claim 4**

The combination of Basham and AAPA disclose claim 1 as above.

They do not disclose expressly wherein determining an order in which to read said plurality of data records comprises:

Identifying a set of data records which can be read in a first direction of said data storage medium relative to a read head; and

Identifying a set of said data records that can be read in a second direction of said data storage medium relative to said read head.

Hillyer discloses a SCAN algorithm, in Col. 10, Lines 49-67 and Col. 11, Lines 1-19, that reads all data segments from a tape drive from left-to-right and then after reading all records in that direction, reverses direction and reads all segments from right-to-left.

The combination of Basham and AAPA and Hillyer are analogous art because they are from the same field of endeavor of improving the speed of access to data stored on a tape drive.

At the time of the invention it would have been obvious to a person of ordinary skill in the art, having the teachings of the combination of Basham and AAPA and Hillyer before them, to incorporate the SCAN algorithm of Hillyer into the tape drive system of the instant application.

The motivation for doing so would have been to reduce the total time to execute accesses to the tape drive (**Hillyer, Col. 1, Lines 37-42**).

Therefore, it would have been obvious to combine Hillyer with the combination of Basham and AAPA to obtain the invention as specified in claim 4.

**Claim 6**

The combination of Basham and AAPA disclose claim 5 as above.

They do not disclose expressly wherein determining a read sequence to control a data storage drive unit for moving a data storage medium past a read head comprises:

Reading a plurality of records on said data storage medium in a first direction, in an order in which they are presented to the read head while the data storage medium is traveling in said first direction relative to said read head; and

Reading a second plurality of data records in an order in which they are presented to said read head as said data storage medium passes said read head in a second direction relative to said read head, said second direction being opposite to said first direction.

Hillyer discloses a SCAN algorithm, in Col. 10, Lines 49-67 and Col. 11, Lines 1-19, that reads all data segments from a tape drive from left-to-right and then after reading all records in that direction, reverses direction and reads all segments from right-to-left.

The combination of Basham and AAPA and Hillyer are analogous art because they are from the same field of endeavor of improving the speed of access to data stored on a tape drive.

At the time of the invention it would have been obvious to a person of ordinary skill in the art, having the teachings of the combination of Basham and AAPA and Hillyer before them, to incorporate the SCAN algorithm of Hillyer into the tape drive system of the instant application.

The motivation for doing so would have been to reduce the total time to execute accesses to the tape drive (**Hillyer, Col. 1, Lines 37-42**).

Therefore, it would have been obvious to combine Hillyer with the combination of Basham and AAPA to obtain the invention as specified in claim 6.

**Claim 8**

The combination of Basham and AAPA disclose claim 7 as above.

They do not disclose expressly wherein said component adapted to determine a read sequence is adapted to control a data storage drive unit for moving a data storage medium past a read head; and

Wherein a plurality of records recorded on said data storage medium are read in a first direction, in an order in which they are presented to the read head while the data storage medium is traveling in said first direction relative to said read head; and

Wherein a second plurality of data records are read in an order in which they are presented to said read head as said data storage medium passes said read head in a second direction relative to said read head.

Hillyer discloses a SCAN algorithm, in Col. 10, Lines 49-67 and Col. 11, Lines 1-19, that reads all data segments from a tape drive from left-to-right and then after

reading all records in that direction, reverses direction and reads all segments from right-to-left.

The combination of Basham and AAPA and Hillyer are analogous art because they are from the same field of endeavor of improving the speed of access to data stored on a tape drive.

At the time of the invention it would have been obvious to a person of ordinary skill in the art, having the teachings of the combination of Basham and AAPA and Hillyer before them, to incorporate the SCAN algorithm of Hillyer into the tape drive system of the instant application.

The motivation for doing so would have been to reduce the total time to execute accesses to the tape drive (**Hillyer, Col. 1, Lines 37-42**).

Therefore, it would have been obvious to combine Hillyer with the combination of Basham and AAPA to obtain the invention as specified in claim 8.

17. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klomp in view of Doi et al. (6,763,427; Hereinafter referred to as Doi).

**Independent Claim 9**

Klomp discloses a method of retrieving a plurality of data records from a tape data storage medium, wherein said plurality of data records are stored on a plurality of wraps of said tape data storage medium, each wrap extending between a first end of a tape and a second end of a tape (**Abstract; Col. 3, Lines 7-24**), said method comprising:

Determining a number of records on each wrap;

Determining a number of a target record which is to be retrieved;

Determining on which of said plurality of wraps said target record resides;

Reading said plurality of data records by moving said tape in a first direction relative to a read head;

Wherein a plurality of said data records are read consecutively along a length of said tape, without stopping movement of said tape relative to said read heads (**Klomp discloses a method of locating data blocks on a tape drive wherein blocks are numbered sequentially in a serpentine manner. As disclosed in Col. 7, Lines 42-52, the method uses an end-of-track directory, which stores the last block number on each track (i.e. cumulative number of records through the current track), and compares a target block number with the last block number of each track to determine on which track the block is located (i.e. if the target number is less than the number of records on the wrap, the wrap has been found, else go to the next wrap and obtain the cumulative number of records through that wrap. If the target record is less than the cumulative number of records, then the wrap has been found, else continue to the next wrap and so on). Also see Fig. 5).**

Klomp does not disclose expressly determining a distance of said target record along said wrap on which said target record resides, from one of said first and second ends of said tape to obtain a physical location data of said data record.

Doi discloses tracking the distance of a record along the length of the tape from the beginning of the tape (**Col. 4, Lines 60-65**).

Klomp and Doi are analogous art because they are from the same field of endeavor of improving the speed of access to data stored on a tape drive.

At the time of the invention it would have been obvious to a person of ordinary skill in the art, having the teachings of Klomp and Doi before them, to determine the distance of a record along the length of the tape.

The motivation for doing so would have been to improve the throughput of data access requests (**Doi, Col. 1, Line 65 – Col. 2, Line 2**).

Therefore, it would have been obvious to combine Doi with Klomp to obtain the invention as specified in claim 9.

#### **Claim 10**

Klomp further discloses the method further comprising:

Reversing a direction of said tape relative to said read head and reading a further plurality of said data records in a second direction, without stopping said movement of said tape relative to said read head, said second direction being opposite to said first direction (**Col. 3, Lines 7-24 disclose that the tape is recorded in a serpentine manner and therefore data can be read in both a forward direction and a reverse direction, with the reverse direction being opposite the forward direction**).

#### **Claim 11**

Klomp further discloses the method further comprising:

Reversing a direction of said tape relative to said read head and reading a further plurality of said data records in a second direction, without stopping said movement of said tape relative to said read head, said second direction being opposite to said first



**direction (Col. 3, Lines 7-24 disclose that the tape is recorded in a serpentine manner and therefore data can be read in both a forward direction and a reverse direction, with the reverse direction being opposite the forward direction); and**

Wherein said reading a further plurality of said data records comprises moving said read head in a direction transverse to a direction of movement of said tape during a pass of said tape relative to said read head, so that said read head reads a plurality of different tracks written to said tape **(Col. 1, Lines 7-24 disclose a head with multiple write elements resulting in a horizontal track, which is in a direction transverse to the movement of the tape and results in a plurality of different tracks written on the tape).**

***Allowable Subject Matter***

18. Claim 14 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2<sup>nd</sup> paragraph, set forth in this Office Action. The primary reasons for allowance of claim 14 in the instant application is the combination with the inclusion in the claim that "(7) returning to step (1); (8) if it has been determined in step (3) that the final record located in step (2) is not available, then examining the list of target records and locating a record that is closest to an end of tape or beginning of tape to which reading of records is currently progressing" and "(11) returning to step (1)."

19. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

***Relevant Art Cited by the Examiner***

20. The following prior art made of record and not relied upon is cited to establish the level of skill in the applicant's art and those arts considered reasonably pertinent to applicant's disclosure. See M.P.E.P. 707.05(c).

U.S. Patent 4,858,039 discloses methods for locating a block of data stored on a serpentine style magnetic tape drive by first searching track to track to find the track with the desired block and then searching block by block to find the desired block.

U.S. Patent 5,373,485 a method for locating data blocks on a serpentine style tape drive by using physical and logical block addresses.

WO 1989/10615 discloses a magnetic tape cassette with a memory device on the cassette to store a directory of the contents of the tape.

Non-patent documents Sandsta et al. and Silberchatz et al. disclose various scheduling methods for locating data blocks in a serpentine style tape drive.

***Conclusion***

21. The following is a summary of the treatment and status of all claims in the application as recommended by M.P.E.P. 707.07(i):

- a. Per the instant office action, claim 14 has been indicated as containing allowable subject matter.
- b. Per the instant office action, claims 1-15 have received a first action on the merits and are subject of a first action non-final.

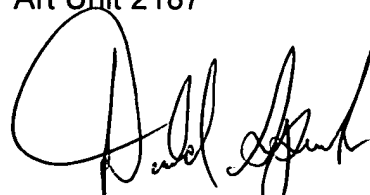
22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ankur Gogia whose telephone number is 571-272-4166. The examiner can normally be reached on M-F 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on 571-272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

3/1/06

Ankur Gogia  
Examiner  
Art Unit 2187

A handwritten signature in black ink, appearing to read 'Donald Sparks', is written over a large, stylized circular mark.

**DONALD SPARKS**  
**SUPERVISORY PATENT EXAMINER**